# Linxuan Zhong

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## EDUCATION

**Tianjin University** **Tianjin, China**
*M.Eng. in Computer Science and Technology (GPA : 3.73/4.0)* *Sept. 2022 ~ Jun. 2025 (Expected)*
- Relevant Coursework : Advanced Algorithms (90), Advanced Artificial Intelligence (92), Applied Statistics (89), Unified Modeling Language (99), Big Data Comprehensive Experiment (85)

**Chongqing University** **Chongqing, China**
*B.Eng. in Computer Science and Technology (GPA : 3.74/4.0 ; Rank : 7/100)* *Sept. 2018 ~ Jun. 2022*
- Relevant Coursework : Advanced Mathematics (87), Linear Algebra (90), Data Structure (94), Computer Composition Principle (93), Computer Architecture (93), Operating Systems (94), Foundation of Machine Learning (92), Deep Learning and Big Data Intelligence (89), Big Data Analysis and Processing (91), Compilers Principles (96)

## RESEARCH EXPERIENCE

**TianJin Key Laboratory of Advanced Networking (TANKLAB)** **Tianjin University**
*Graduate student, directed by Wenyu Qu, co-directed by Wenxin Li* *Sept. 2022 ~ Present*

**Efficient Disaggregated Memory Eviction with Glitter** *Oct. 2023 ~ May. 2024*

**Linxuan Zhong**, Wenxin Li, Yulong Li, Jiawen Shen, Song Zhang, Wenyu Qu, Yitao Hu. Efficient Disaggregated Memory Eviction with Glitter. *In Proceedings of the 26th IEEE International Conferences on High Performance Computing and Communications*, 2024. Acceptance rate : 25.4%.
- Proposed Glitter, an adaptive, multilevel-aware eviction solution for memory disaggregation systems designed to enhance application throughput in large-scale scenarios. Glitter includes an *Adaptive Eviction Threshold Adjustment Module*, leveraging a multi-level awareness mechanism, and an *Eviction Flow Scheduling Module*, utilizing a memory awareness mechanism.
  - Developed and implemented the code for Glitter, integrating it into Fastswap, a state-of-the-art kernel-integrated disaggregated memory system. Glitter enhances Fastswap's performance, achieving an average 1.4× throughput.
  - Conducted and completed all evaluation experiments, along with four motivation experiments.
  - Led an undergraduate student to successfully complete two motivation experiments.

**JARM : Transparent, Object-Based Remote Memory System for Java Applications** *Mar. 2023 ~ Present*

**Linxuan Zhong**, Wenxin Li, Hao Liu, Yulong Li, Wenyu Qu. JARM : Transparent, Object-Based Remote Memory System for Java Applications. *To Be Submitted to NSDI*, 2025.
- Proposed JARM, a transparent and high-performance remote memory system leveraging static program analysis. JARM features a *Remotable Object Abstraction*, an *Automated Code Deployment Module* and an *Application-Level Runtime*.
  - Developed and implemented JARM with over 6,000 lines of Java code, built on the Tai-e and DISNI frameworks.
  - Compared to Fastswap, a state-of-the-art memory disaggregation system, JARM is able to reduce bandwidth overhead by 2.9×, average latency by 2.4×, and application completion time by 40% to 80%, while requiring 20% of the working set size in local memory and without any modifications to user code.

**Key Laboratory of Dependable Service Computing in Cyber-Physical-Society (CPS-DSC)** **Chongqing University**
*Undergraduate research assistant, directed by Songtao Guo* *Mar. 2020 ~ Jun. 2022*

**Burst IP Forwarding** *Mar. 2020 ~ Jun. 2022*
*Cooperative project with Huawei*
- Developed a demo system UI animation interface showcasing Huawei's innovative data forwarding mechanism prototype.
  - Collaboratively implemented a token-based burst forwarding network on OMNET++ using an aggregation tree topology, and analyzed its performance in comparison to TCP network in a metro gate simulation scenario.
  - Collaboratively validated the performance of new optimization strategies for the token-based data transmission mechanism including a *Nearby Token Reuse Strategy* and an *Early Token Return Strategy* through simulations.

## PROFESSIONAL EXPERIENCE

**College of Computer Science** **Chongqing University**

**MIPS SOC Design and Performance Optimization**, *Winter Practical Training* *Dec. 2020 ~ Jan. 2021*
- Designed a five-stage pipelined CPU using Verilog, incorporating modules such as the *Arithmetic Logic Unit*, *Program Counter*, *Main Decoder*, *ALU Decoder*, and *Instruction/Data Memory* and verified its functionality using Vivado simulation.
  - Collaboratively expanded the five-stage pipelined CPU from 10 to 57 instructions, covering all non-floating point *MIPS I* instructions (excluding *LWL*, *LWR*, *SWL*, *SWR*) as well as the *ERET* instructions in *MIPS 32*. Personally, I was responsible for implementing 23 of these instructions.

**CQU-Face Facial Recognition Social Platform**, *Summer Practical Training* *Jun. 2020 ~ Jul. 2020*

- Collaboratively developed a web platform utilizing facial recognition, allowing users to register, log in, and upload a selfie to receive an analytics report featuring age prediction, facial scores, and real-time mood analysis. This platform also includes a social networking system with features such as personal information display, sharing, liking, commenting, favoriting, following and more.
  - Managed back-end development using Django framework, including the implementation of face recognition API calls and the functionality for sharing reports, personal information pages, fan pages, and follow pages.

✱ **Hongshen Honors School** **Chongqing University**

**Alzheimer's Disease Prediction and Classification**, *Student Research Training Program* *Nov. 2019 ∼ Nov. 2020*

- Extracted volume features from MRI images of Alzheimer's patients using the FSL and AFNI toolboxes, and standardized the data based on Intracranial Volume (ICV) and Z-Score.
  - Constructed multiple classifiers using feed-forward neural networks, convolutional neural network, support vector machines, Naive Bayes, k-nearest neighbors and random forests. Analyzed their performance accuracy on the ADNI dataset and integrated them into a multi-classifier system based on soft-voting.
  - Conducted an importance analysis of the volume characteristics of patient brain tissue (including gray matter, white matter, and cerebrospinal fluid) using random forest analysis.

✱ **China Center for International People-to-People Exchange** **Ministry of Education**

**Flower Image Classification and Transportation Object Detection** *Jul. 2019*

*Artificial Intelligence Training Camp for Chinese College Students, admission rate of 9%, awarded as the team second prize (3/25).*

- Individual Project : Built a convolutional neural network for image recognition on 16 flower species and developed a *Fast-R-CNN* for facial detection tasks using PyTorch.
  - Team Project : Developed a *Yolo-v3* model to filter, classify, and capture bounding boxes for large datasets containing images of buses, cars, ships, and airplanes. I was responsible for labeling original images using LabelImg, augmenting images for training data and tuning models

## VOLUNTEERING

**The 23rd International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP 2023)**

*Tianjin, China, 20-22 Oct. 2023*

- Responsible for the development and maintenance of the Official Conference Website, including the *Home* page, *Author* page, *Workshop* page, *Program* page and *Keynote* page.
  - Responsible for scheduling and organizing the Conference Program.
  - Served as a conference volunteer for material preparation (design and production of conference credentials, conference manuals, etc.), registration of participants, and coordination of expert transportation.

## AWARDS

- Academic Scholarship, Second Prize, Tianjin University. *Oct. 2022*
- Comprehensive Scholarship, Third Prize, Top 14%, Chongqing University. *Dec. 2020*
- Comprehensive Scholarship, Second Prize, Top 8%, Chongqing University. *Dec. 2019*
- National University Student Artificial Intelligence Training Camp, Team Second Prize, China. *Jul. 2019*
- Comprehensive Scholarship, Second Prize, Top 8%, Chongqing University. *Apr. 2019*
- Mathematical Modeling Challenge Cup, Third Prize, Chongqing University. *Apr. 2019*
- Social Practice in Winter Vacation, Excellent Award, Team Leader, Chongqing University. *Mar. 2019*

## SKILLS

- **Programming Language :** Python, C++/C, Java, Verilog, HTML/CSS/JavaScript, Matlab
- **Deep Learning Frameworks :** Tensorflow, PyTorch, Keras
- **Network Simulator :** OMNET++, NS-3, YAPS
- **System and Tools :** Linux, RDMA, Docker, Cloudlab, Git, LaTeX